

REMARKS

Please cancel claims 1-7, and 25-27.

Applicant believes the claims as amended to be in condition for allowance, as none of the cited references discloses all elements of the claims as amended. More specifically, none of the cited references discloses guide beams having vacuum chambers. Note that independent claims 8, 11, 28, and 30 each disclose a guide beam having at least one vacuum chamber. Such a guide beam configuration is not disclosed in any of the references cited.

Higuchi

U.S. Patent No. 6,510,755 to *Higuchi et al.* ("*Higuchi*") discloses a stage mechanism 1 with two slide shafts 3 that are each supported by air slide bearings 5. Each of the air slide bearings 5 contains all the mechanisms required in an air bearing: air pads 32 and suction grooves 33-35 (See FIG. 2 and Col. 10:15-21). Consequently, the shafts 3 need no mechanisms for fluid transport of air, and are simply solid shafts (See, e.g., FIGS. 1a-1b). This is true throughout the embodiments of *Higuchi*, including the embodiment of FIGS. 4. Specifically, FIGS. 4 of *Higuchi* disclose a slide shaft 43 that is "similar in structure to that shown in FIG. 2." (Col. 12:34-35). Namely, the air slide bearing generates airflow (as it contains air pads and suction grooves 45, 46), while the shaft is simply a solid shaft (Col. 12:33-46).

In contrast, each of Applicant's independent claims references a guide beam that is not just a solid shaft, but instead has at least one vacuum chamber. Accordingly, *Higuchi* does not disclose every element of the independent claims as amended.

As the remaining claims depend from the independent claims, they are also patentable over *Higuchi* for at least this same reason.

Lo

U.S. Patent No. 6,252,705 to *Lo et al.* ("*Lo*") discloses a stage 100 that is propelled along two sets of linear bearing rails 117a-b, 118a-b, by motors 103a-b, respectively (Col. 5:7-23). *Lo* does not disclose airbearing structures for actuating the stage 100. Rather, *Lo* only discloses the actuation of stage 100 by piezoelectric motors (Col. 5:19-38). Indeed, *Lo* specifically states that airbearing structures are not to be used for actuation: "Stage 100 is made vacuum compatible by using vacuum compatible motors as mentioned above, and by not using air bearing[s]" (Col. 9:34-36) (emphasis added).

Accordingly, *Lo* does not disclose airbearing structures, and thus does not disclose guide beams having vacuum chambers. *Lo* thus does not disclose all elements of the claims as amended.

Trost

U.S. Patent No. 5,784,925 to *Trost et al.* ("*Trost*") discloses a vacuum compatible linear motion device 100 that includes a fluid bearing 150 configured to move along a bearing rod 152 (Col. 4:1-20). As with *Higuchi*, the bearing rod 152 is a simple solid rod; the fluid bearing 150 contains all the fluid-flow mechanisms required. For example, FIGS. 5-6 of *Trost* illustrate bearing collars 410, 510 with fluid inlets 420, 520 and outlets (gaps 415, and ports 540). The bearing rod 152 has no analogous components.

Accordingly, *Trost* does not disclose bearing rods 152 having vacuum chambers, and thus does not disclose all elements of the claims as amended.

Applicant now believes the present case to be in condition for allowance, and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at (650) 314-5322.

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP



Jon Y. Ikegami

Reg. No. 51,115

P.O. Box 778

Berkeley, CA 94704-0778